Forum Mathematicum 2007 vol.19 N1, pages 149-157

A proof of the Livingston conjecture

Avkhadiev F., Wirths K.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

Let D denote the open unit disc and f : D → be meromorphic and injective in D. We further assume that f has a simple pole at the point p ∈ (0, 1) and an expansion . In particular, we consider functions f that map D onto a domain whose complement with respect to is convex. Because of the shape of f (D) these functions will be called concave univalent functions with pole p and the family of these functions is denoted by Co(p). It is proved that for fixed p ∈ (0, 1) the domain of variability of the coefficient an(f), n ≥ 2, f ∈ Co(p), is determined by the inequality . This settles two conjectures published by A. E. Livingston in 1994 and by Ch. Pommerenke and the authors of the present article in 2004. © Walter de Gruyter 2007.

http://dx.doi.org/10.1515/FORUM.2007.007